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FIELD MUSEUM OF NATURAL HISTORY

PUBLICATION 231

BOTANICAL SERIES VOL. IV, NO. 4

SOUTH AMERICAN PLANTS

BY

J. FRANCIS MACBRIDE

Assistant Curator, Taxonomy

also

new Euphorbias by C. F. Millspaugh and Canavalias by C. V. Piper

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SOUTH AMERICAN PLANTS

mostly from the

CAPTAIN MARSHALL FIELD EXPEDITION TO PERU

1922 AND 1923

BY

J. FRANCIS MACBRIDE

also

new Euphorbias by C. F. Millspaugh and Canavalias by C. V. Piper

This is the first Museum publication based upon the collections of the two Captain Marshall Field Botanical Expeditions but many important papers on them have been presented elsewhere by specialists who have studied a number of the larger groups. The results of their work have disclosed an amazing number of herbs and trees hitherto unknown to science, indicating the great opportunity for further botanical exploration in Peru. The 1924 Annual Report of the Director of this institution lists the botanists who have assumed responsibility for certain groups and the Reports for 1922 and 1923 give the itineraries for both trips. However, a complete list of the collecting stations has not been published, and therefore one is appended.

As a traveler and collector in Peru, one becomes largely dependent for comfort and aid on the good-will of the inhabitants. The work is constantly complicated by problems concerning transportation and food both for men and cargo animals. Indeed, the extent and seriousness of these problems in their relation to botanical collecting can scarcely be believed until experienced. Therefore, such success as attended the two Captain Marshall Field Expeditions was largely due to the generous personal interest taken in our work by many residents and natives of Peru. It was possible to mention only a few of these in the Reports referred to above and accordingly I wish to express here my grateful appreciation to all those who aided us so materially.

I am indebted to Dr. B. E. Dahlgren for many helpful suggestions in the preparation of the paper.

COLLECTING LOCALITIES IN PERU FOR THE CAPTAIN MARSHALL FIELD BOTANICAL EXPEDITIONS, 1922 and 1923

DEPARTMENT OF ANCASH

Catuc (near Huaraz)
Chacchan
Huarapasca (E. Ancash)
Huaraz
Pomopampa (E. Ancash)
Recuay
Tambo de Pariocota
Yautan

DEPARTMENT OF HUANUCO

Ambo
Cani (near Mito)
Chaglla
Chasqui (near Mito)
Chavanillo
Chinchapalca (near Mito)
Cueva Grande (near Pozuzo)
Cushi
Huacachi (near Muña)
Huanuco
Llata
Maria Del Valle
Mito
Muña
Pampayacu (Rio Chinchao)
Panao
Piedra Grande (near Muña)
Playapampa (S.E. Huanuco)
Pozuzo
Punco
Rio Huallaga Cañon (below Muña)
Rio Marañon (below Chavanillo)
San Carlos Mines (near Huallanca)
Tambillo (near Panao)
Tambo de Vaca
Tomaiquichua
Villcabamba (Rio Chinchao)
Yanahuanca
Yanano
Yanashallas (W. Huanuco)

DEPARTMENT OF JUNIN

Cabello (N. Junin)
Cerro de Pasco
Chinche (near Yanahuanca)
Huacapistana
Huancayo
Huariaca
Huaron (N. Junin)
Huertas (N. Junin)
La Merced
La Oroya
La Quinua
Morococha
San José (N. Junin)
San Rafael
Tarma
Uspachaca
Yauli

DEPARTMENT OF LIMA

Callao
Casapalca
Chosica
Lima
Matucana
Rio Blanco
Viso

Hesperomeles Fieldii, spec. nov., arbor usque ad 3.5 m. alta, inermis; ramulis foliisque glabris; internodiis 0.5-1 cm. longis; foliorum petiolo 3-10 mm. longo, lamina coriaceo-chartacea elliptica vel obovata 2 (1.5) -4 (4.5) cm. longa 1.5 (1)-2.5 (3) cm. lata basi subabrupte acuta vel in petiolum leviter contracta apice rotundata vel fere truncata subtus ut videtur pallidiore supra nitente margine a medio ad apicem minute crenato-dentata, venulis inconspicuis, costa media mediocriter prominente; inflorescentiis cymoso-corymbosis fere glabris laxiusculis folios distincte superantibus; pedicellis bracteisque (linearibus) glabris vel parce villosculis; calycis lobis late ovatis acutis vix 1 mm. longis quam receptacula distincte brevioribus; floribus ut videtur albis 5-7 mm. latis, petalis denticulatis glabris, disco villoso; fructibus ignotis.—PERU: 10 ft. much branched tree of steep open slopes, Yanano, May 13-16, 1923, *Macbride 3752* (TYPE, Field Museum).

This attractive flowering tree—resembling considerably our common Hawthorn—is named for Capt. Marshall Field, sponsor of the expedition upon which it was secured.

Both Schneider, Engl. Bot. Jahrb. xlii. 85-88 (1908), and Pittier, Contrib. U. S. Nat. Herb. xx. 106-111 (1918), proposing new species of this rosaceous group, comment upon our meager and inexact knowledge of many of the earlier described forms. A most cursory examination of the literature relating to the group will confirm their observation as will also any attempt, however superficial, to determine herbarium material. Notwithstanding this difficulty, however, it seems necessary to propose the tree described above as a new species because of its large and quite glabrous leaves and its singularly short and broad calyx-lobes.

The validity of *Hesperomeles* Lindl. Bot. Reg. xxiii. sub. t. 1956 (1837), has often been questioned. Bentham and Hooker, Gen. Pl. 1. 629 (1865), wrote "ab Osteomele nullo modo differt, nisi foliis simplicibus" and so merged it with the earlier published genus *Osteomeles* Lindl. Trans. Linn. Soc. xiii. 98. t. 8 (1821). In this they were followed by Decaisne in his Mémoir sur la famille des Pomacées, Nouv. Archives du Mus. d'Hist. Nat. Paris, x. 184 (1874). And recently Pittier, l.c., without comment, has also accepted its reduction.

Schneider, l.c., however, maintained the genus although he advanced no newly discovered character. Evidently it can be distinguished in the herbarium from *Osteomeles* only by the simple leaves and, as Decaisne points out, this character, in the Rosaceae, may not be of much importance. But it is doubtful if he knew the peculiar habit of *O. anthyllidifolia* (Sm.) Lindl. the single typical (and original) species. It is thus described by Rock, Indig. Trees Hawaii. Isl. 46 (1913): "a rosaceous vine of great toughness forms dense tangles over thrown up fissures in *pahoehoe* lava. During the morning sunshine thousands of

Odynerus (Hawaiian wasps) and bees can be found flying over the sweet-scented flowers . . . . ." The Hawaiian *Osteomeles*, therefore, appears to be altogether distinctive in habit, and, because of its pinnate leaves, also in aspect from the simple-leaved trees and shrubs of the Andes that have been considered congeneric. Consequently Schneider's restoration of the generic name *Hesperomeles* for the latter is advisable.

HESPEROMELES PERNETTYOIDES Wedd. Chlor. And. ii. 230 (1857).—PERU: 4 ft. and less high, Yanahuanca, June 16-22, 1922, *Macbride & Featherstone 1286*; dryish canyon slope, Chinchapalca, pueblo 5 miles above Mito, July 16-27, 1922, *Macbride & Featherstone 1590*; low (2-3 ft.) shrub of grasslands and dry canyons, Mito, July 8-22, 1922, *Macbride & Featherstone 1507*; ditch bank, to 14 ft., branches spreading, virgate, Tomaiquichua, pueblo 3 miles below Ambo, Sept. 19, 1922, *Macbride & Featherstone 2418*.

The petals of this species are white although the anthers are red. Number 2418 was collected as a luxuriant example of this common plant, its greater size and vigor being ascribed to the proximity of an irrigation ditch. Very probably this shrub—met with so frequently in the central Peruvian Andes and known to the Indians as "Muchci"—is variable enough in habit and in degree of leaf-dentation to include the subdecumbent form described under the name *H. cuneata* Lindl. Bot. Reg. xxiii. sub. t. 1956 (1837). However, as observed by Schneider, l.c. 87, the problem ought to await further field and herbarium study.

HESPEROMELES OBLONGA Lindl. Bot. Reg. xxiii. sub. t. 1956 (1837). —PERU: rocky eastern canyon side, to 3 ft. high, Llata, Aug. 21, 1922, *Macbride & Featherstone 2267*.

This shrub, curiously enough not mentioned by Decaisne in his revision, l.c., can scarcely be the same as *H. ferruginea* (Pers.) Benth. as suggested by Schneider, l.c. 86. Its leaves are not at all cordate but truly oblong (4-6 cm. long by 2-2.5 cm. broad), and abruptly rounded to the subacute base and apex.

Psoralea maleolens, spec. nov., fruticosa circa 1.5 m. alta; ramis ramulisque plerumque glabris sed glanduliferis, glandulis sessilibus; ramulis in siccitate saepe purpurascentibus subherbaceis gracillimis patenti-adscendentibus et flexuosis vel curvatis glabris vel parti superiori minute et parce adpresse nigro-strigillosis; foliis nigro-punctatis viridibus subtus paullo pallidioribus; stipulis ovatis striatis glandulosis et nigro-ciliatis circa 3 mm. longis; petiolo 1.5-2.5 cm. longo glabro vel paullo adpresse strigilloso; foliolis subsessilibus lanceolatis vel ovato-lanceolatis basi apiceque subacutis vel apice abrupte apiculatis circa 3.5 cm. longis et 1.2 cm. latis (2.5-5.5 cm. × 1-1.5 cm.) glabris, petiolatis vulgo hirsuto-villosis; spicis densis vel fructiferis solum mediocriter re-

motifloris circa 4 cm. longis dense nigro-villosis, pedunculis plerumque 2.5-4 cm. longis glabris vel paullo adpresse strigillosis; floribus saepe plus minusve fasciculatis; bracteis ovato- vel rotundato-acutis circa 2 mm. longis; calycibus mediocriter glandulosis et villosis cum pilis subpatentibus, tubo fere 3 mm. longo; laciniis circa 2 mm. longis superioribus anguste ovatis inferioribus ovatis profunde dentatis; corolla 6 vel 7 mm. longa purpurea.—PERU: Mito, July 8-22, 1922, *Macbride & Featherstone 1376* (TYPE, Field Museum); open brushy canyon side, 15 miles N.E. of Huanuco, June 12-22, 1922, *Macbride & Featherstone 2146;* sunny grassy slopes, Panao, May 10, 1923, *Macbride 4946.*

This species apparently is most nearly related to *P. mexicana* (L.f.) Vail, Bull. Torr. Bot. Club, xxi. 119 (1894), to which Colombian plant, however, it can scarcely be referred. It lacks entirely the spreading coarse pubescence that thickly clothes the branchlets and, to some extent, the leaves of *P. mexicana;* and its leaves are narrower and its stems slenderer. Whatever pubescence is present is a subappressed strigillosity very different in character from that of *P. mexicana*, and therefore not to be regarded as the same reduced in quantity.

P. maleolens in pubescence and leaf-form suggests *P. glandulosa* L. Sp. Pl. ed. 2. 1075 (1763), but lacks the elevated glands and large pale flowers of that Chilean species. *P. lutea* Molina, Sagg. Chile, 163 (1782) and ed. 2. 145, 293 (1810) credited by Poiret, Lam. Encyc. v. 685 (1804) to Peru or Chili is almost surely a mere color variation or freak of *P. glandulosa* as indicated by Gay, Hist. Chile, ii. 87 (1846) and by Reiche, Fl. Chile, ii. 76 (1897) since Molina himself in the second edition of his work, l.c., added to his previous descriptive account of it (and I think significantly) the following sentence: "Io non vidi che due o tre piante de questa specie, o piuttosto varietà", and moreover omitted it entirely from his chapter of botanical diagnoses.

My field notes record *P. maleolens* as a 4-5 ft. half-shrub or shrub rather open in habit, with a very disagreeable odor, even more unpleasant than that of *P. lasiostachys* Vog. Nov. Act. xix. Suppl. 1. 13 (1843) to which species *Macbride & Featherstone 1375*, found growing near by, seems referable. The Indians called any species of this alliance "Culin" or "Coling" but distinguished their medicinal properties, using, for instance, *P. lasiostachys* under the name "Coling Macho" only for an ailment of the stomach and *P. maleolens*, under the name "Coling Imbra" as a substitute for tea as well as a remedy for disorders of the stomach.

PSORALEA MARGINATA Meyen, Reise, i. 436 (1834).—PERU: moist flats, Tomaiquichua, pueblo 3 miles below Ambo, Sept. 19, 1922, *Macbride & Featherstone 2436*; sunny canyon slope, Yanano, May 13-16, 1923, *Macbride 3736.*

This 3-4 ft. shrub or small tree with a crown of short branchlets and blue or purple flowers appears from description to be the same as Meyen's plant secured by him on the Rio de Arica in extreme southern Peru.

PSORALEA PUBESCENS Pers. Syn. Pl. ii. 347 (1807).—PERU: moist soils of Santa Eulalia river-valley, Chosica, April 28-May 2, 1922, *Macbride & Featherstone 500.*

This is a shrub only about three feet high, the stems strict to the inflorescence and growing in clumps, the flowers blue and the upper portions of the stems very white-villous. It is either the same as Persoon's plant—very meagerly described—or a new species.

Psoralea munyensis, spec. nov., fruticosa erecta fere 2 m. alta; ramulis petiolis pedunculisque gracilis plus minusve griseis vel nigro-griseis cum pilis brevibus crispis vel firmiusculis patentibus; stipulis anguste lanceolatis acuminatis circa 5 mm. longis adpresse pilosis; petiolo communi (2) 3.5-5.5 cm. longo; foliolis ovato-lanceolatis basi vix acutis apice mediocriter abrupte acuminatis plerumque 2-3 cm. latis 5-8 cm. longis paullo vel vix glandulo-punctatis supra viridibus glabris vel costa venisque obscure strigillosis subtus paullo pallidioribus subadpresse pilosciusculis vel denique subglabris, juvenate sericeo-pilosis; racemis elongatis mediocriter compactis vel basi plus minusve interruptis circa 7 cm. longis folio 2-3-plo longioribus; pedunculis 6-9 cm. longis; pedicellis 1-2 mm. longis nigro-strigosis; bracteis ovatis abrupte longo-acuminatis 6-7 mm. longis; calycis haud vel obscure glandulosis dense subadpresse villosis cum pilis nigris et albis intermixtis; tubo circa 2 mm. longo; laciniis lineari-lanceolatis vel anguste ovatis acuminatis circa 2 mm. longis; calycis fructiferi laciniis similibus sed 3 vel fere 4 mm. longis; corolla ut videtur purpurea 4-5 mm. longa; legumina obliqua circa 5 mm. longa et 2 mm. lata subglabra abrupte apiculata.—PERU: slender shrub (5 ft.) at edge of montaña along trail, Muña, May 23-June 4, 1923, *Macbride 3906* (TYPE, Field Museum).

P. munyensis is distinctive among the pubescent-leaved species with elongate flowering stalks because of its very small flowers. Its leaves may become nearly glabrous with age but among the glabrous-leaved species it can be compared only with *P. yurensis* Rusby, Bull. N. Y. Bot. Gard. vi. 511 (1910), which, however, is described as having very small (2 mm. long) stipules, longer corollas and an ovoid acuminate pod.

Psoralea Featherstonei, spec. nov., fruticosa circa 2 m. alta; ramis brunneis mediocriter robustis simplicibus; ramulis petiolis pedunculisque molliter cum pilis patentibus pilosis etiam adpresse nigro-strigillosis; stipulis a basi deltoidea acutis 2-3 mm. longis dense adpresse strigosis; petiolo communi vulgo 4 cm. longo; foliolis breve petiolatis (circa 3 mm. longis) oblongo-lanceolatis basi apiceque subacutis vel obtusis

plerumque circa 6 cm. longis et 2 cm. latis aequabiliter utrinque pallido-viridibus glabris vel costa media paullulo strigillosa, brunneo-glandulo-punctatis; pedunculis 9-12 cm. longis saepe cum 2 flores in medio parti; racemis congestis circa 4.5 cm. longis et 2 cm. latis; floribus subsessilis purpureis circa 1 cm. longis; calycibus molliter cum pilis nigris et albis adpressis intermixtis pilosis circa 6 mm. longis; laciniis ovatis vix acutis circa 1 mm. longis; bracteis rotundis abrupte acutis circa 5 mm. longis. —PERU: steep shrubby western slope, Matucana, April 12-May 3, 1922, *Macbride & Featherstone 406* (TYPE, Field Museum).

This beautiful shrub with virgate branches and purple-blue flowers probably is most nearly related to *P. pubescens* from which it may be distinguished readily by its oblongish blunt leaves that are essentially glabrous.

Psoralea potens, spec. nov., fruticosa robusta foetida 2 m. alta; caulibus aliquot ad basim 7.5 cm. in diametro; ramulis petiolis pedunculisque plus minusve cum pilis nigris et albis pulverulo-puberulis et crispe strigillosis etiam sparce glandulosis cum glandulis paullulo elevatis; stipulis late ovatis acutis vel breve acuminatis 2-3 mm. longis; petiolo communi 4-5 cm. longo; foliolis anguste ovato-lanceolatis basi subacutis apice breve acuminatis 5-6 cm. longis 1.5-2 cm. latis aequabiliter utrinque pallido-viridibus glabris excepto costa media adpresse strigillosa, dense nigro-glandulo-punctatis; pedunculis elongatis plus minusve nigrescentibus 9-14 cm. longis; racemis mediocriter densis vel parti inferiori remotifloris; calyce circa 8 mm. longo dense cum pilis nigris et albis et cum glandulis stipitatis intermixtis villoso-hirsuto; laciniis ovatis acutis non superante 2 mm. longis; floribus ut videtur purpureis circa 1 cm. longis.—PERU: several-stemmed clumps on southwest slope, Tarma, June 1-6, 1922, *Macbride & Featherstone 1022* (TYPE, Field Museum).

P. potens, the name given in reference to the strong vile odor of the plant, and the other species described or discussed above may be summarized as follows. All the species ascribed to Peru are included in the key with the exception of *P. divaricata* Willd. Enum. ii. 788 (1809), which is only doubtfully referred to this genus by HBK. Nov. Gen. & Sp. vi. 489 (1823) who describe the corolla as two times longer than the calyx.

KEY TO THE PSORALIAS OF PERU

Branches and branchlets glabrous or sparsely appressed strigillose.
  Flowers 8-10 mm. long; glands more or less elevated.
    Calyx sparsely appressed strigose.....*P. glandulosa.*
    Calyx densely villous and glandular.....*P. potens.*
  Flowers 6-7 mm. long; glands sessile.....*P. maleolens.*
Branches and branchlets villous, pilose or gray-puberulent.
  Pubescence of branchlets spreading, villous-hirsute; flowers small, about 6 mm. long.....*P. mexicana.*
  Pubescence of branchlets various, if spreading, not at all hirsute; flowers often longer.
    Leaflets strongly pubescent beneath, at least on the veins.

Spikes subequaling or shorter than the leaves.
Very dense; flowers about 6 mm. long...*P. marginata.*
More or less interrupted; flowers larger..*P. pubescens.*
Spikes or racemes much exceeding the leaves.
Leaflets tomentose beneath.....*P. Trianae.*
Leaflets not tomentose beneath.
More or less appressed silky; flowers about 6 mm. long.....*P. munyensis.*
More or less hirsute-villous; flowers longer.....*P. pubescens.*
Leaflets glabrous or essentially so.
Calyx glands sessile, more or less hidden by pubescence.
Spikes much exceeding the leaves.
Branchlets "viscid-pubescent".....*P. lasiostachys.*
Branchlets "gray-puberulent or white-pilose".....*P. yurensis.*
Spikes little, if any, longer than the leaves *P. Featherstonei.*
Calyx glands stipitate, conspicuous.
Branchlets densely villous.....*P. lasiostachys.*
Branchlets closely pubescent with a fine appressed indument.....*P. potens.*

In Contrib. Gray Herb. lxv. 14 (1922) I questioned the expediency of segregating the genus *Psoralea* as proposed by Rydberg, N. A. Fl. xxiv. (1919). I am still unsatisfied that the salient characters upon which he bases his segregation,—viz., the adherency or inadherency of the pericarp to the seed and the indehiscence or ultimate dehiscence of the pod—are here of sufficient significance to warrant their use for the delimitation of various genera. These characters seem not to be developed to an equal state of definiteness when all the species are considered but, as a matter of fact, many forms are as yet very imperfectly known. For the present, then, it seems to me,—with due recognition of Dr. Rydberg's sincerity and with appreciation of his conception of genera,—that the continued acceptance of *Psoralea* in the larger sense is most natural and feasible.

Parosela ayavacensis (HBK.) comb. nov. *Dalea ayavacensis* HBK. Nov. Gen. & Sp. vi. 486 (1823).—PERU: Dept. Ayacucho, *Weberbauer 5570;* Tambillo, near Panao, *Macbride 3576;* Tomaiquichua, near Ambo, *Macbride & Featherstone 2427;* 15 miles s.e. of Huanuco, *Macbride & Featherstone 2085.*

This is an open-growing shrub, usually 4 or 5 feet high, of stream banks or sunny thickets. The flowers are bright or deep blue with two greenish spots on the center of the banner.

TEPHROSIA TOXICARIA (Sw.) Pers. Syn. Pl. ii. 329 (1807).—PERU: La Merced, Hacienda Schunke, Aug. 27-Sept. 1, 1923, *Macbride 5661.*

Although Weberbauer* does not list this widely distributed species,

*The use of Dr. Weberbauer's name here as elsewhere in this paper refers to his excellent Die Pflanzenwelt der Peruanischen Anden, Die Veg. der Erde, XII. (1911).

I found it well known to the Indians in the vicinity of La Merced who use it to stupify fish. The flowers have been described as "whitish" or "pale yellow" but those of the specimen cited above were white except for the banner which was green without and white-edged.

Tephrosia diversifolia (Rose) comb. nov. *Cracca diversifolia* Rose, Contrib. U. S. Nat. Herb. xii. 270 (1909).

Tephrosia cuernavacana (Rose) comb. nov. *Cracca cuernavacana* Rose, Contrib. U. S. Nat. Herb. xii. 269 (1909).

Tephrosia Pringlei (Rose) comb. nov. *Cracca Pringlei* Rose, Bot. Gaz. xl. 143 (1905).

Tephrosia Watsoniana (Standl.) comb. nov. *Cracca Watsoniana* Standl. Contrib. U. S. Nat. Herb. xxiii. 472 (1922). *Clitoria*(?) *sericea* S. Wats. Proc. Am. Acad. xxii. 407 (1887), not *Tephrosia sericea* Baker, in Oliver, Fl. Trop. Afr. ii. 107 (1871), a valid species.

TEPHROSIA LANATA Mart. & Gal., var. **velutina** (Rydb.) comb. nov. *Cracca velutina* Rydb. N. A. Fl. xxiv. 171 (1923).—MEXICO: Zopelote, Tepic, 1895, *F. H. Lamb 575*.

This is probably a fairly well-marked variety by virtue of its somewhat denser and shorter pubescence and mostly oblongish leaflets. The other differences noted by Rydberg, l.c., notably the larger flowers and the merely terminal racemes, are not apparent or pronounced in the specimen before me.

APURIMACIA MICHELII (Rusby) Harms, Rep. Spec. Nov. xix. 10 (1923). *Gliricidia Michelii* Rusby, Mem. Torr. Bot. Club, vi. 22 (1896). —PERU: In rocks along river. Woody below; long stems (4 ft.) rather "viny". Flowers dull bluish, the bases green. Huariaca, Sept. 13, 1922, *Macbride & Featherstone 2403;* open shrub to 5 ft. high. River canyon, Uspachaca, June 23, 1922, *Macbride & Featherstone 1293;* open shrub-tree about 4 ft. high, river canyon slopes, April 4, 1923, San Rafael, *Macbride 3137*.

These specimens seem to confirm Harms' observation in respect to *A. Michelii*, *A. libertatis* Harms, *A. incarum* Harms, l.c. 11, and *A. lonchocarpoides* Harms, l.c. 12, that "Die vier Arten stehen sich sehr nahe und sind vielleicht später in eine zusammenzufassen". However, the only authentic material of Harms' species before me is *Weberbauer 7172*, *A. incarum*. The Field Museum specimens are all from the Department of Junin and are in fruit, except for *Macbride & Featherstone 2403*, which closely matches the co-type material of *A. Michelii*. The two fruiting specimens appear to be similar; the ripe pods are glabrous or

minutely and sparsely appressed hispidulous, ligneous, about 6 cm. long and 13 mm. wide, the impressions about the seeds obscure without but with some cellular tissue partly dividing them within; the seeds are red-brown, suborbicular, flat, nearly 0.7 mm. across.

The genus *Apurimacia* Harms, l.c. 10, is apparently valid with much the aspect of *Coursetia* but with more of the characters of *Willardia*. From the latter it differs chiefly in its ligneous pods.

Coursetia perplexans, nom. nov. *Cracca poliophylla* Harms, Rep. Spec. Nov. xviii. 236 (1922), not *Coursetia polyphylla* Brandg. Univ. Calif. Pub. Bot. iv. 376 (1913).—PERU: between Amoray and Sañaica, Dept. Apurimac, Oct. 1915, *Weberbauer 7173;* Huanuco, Sept. 23, 1922, *Macbride & Featherstone 2449;* Huanuco, April 5-8, 1923, *Macbride 3248.*

The generic position of this plant is undoubtedly open to question because of the presence of a bractlet a short distance beneath the calyx. This seems to be a character heretofore unnoted for any member of the subtribe *Robinianae*, at least as defined by Rydberg in his recent helpful revision of the North American *Galegeae*, Am. Journ. Bot. x. 485-498 (1923) and xi. 470-482 (1924). Nevertheless, the plant's disposition in the *Robinianae* is scarcely subject to argument. It cannot be referred, however, to *Benthamantha* (*Cracca* Benth.), as done by Harms, l.c., because its pods are not those of that genus. They are rather the pods of the closely related genus *Coursetia*, as they are not definitely nor strongly impressed between the seeds and the slight constrictions run obliquely to the pod-edges rather than at right angles as do the conspicuous ones that typify the pods of *Benthamantha*. Furthermore, the species is allied by habit and aspect to *Coursetia*. Although the presence or absence of a bractlet is used by Rydberg as one of the means of defining certain subtribes, it is certainly not significant in this case where the plant, notwithstanding this development, is so genuinely a member of the Robinianian genus *Coursetia*.

Indeed, it seems to be most closely related to the type of the genus, *Lathyrus fruticosus* Cav. Ic. i. 58. pl. 84 (1791)* from which it differs essentially only in the fewer leaflets (6-15) instead of about thirty. The material from Huanuco, especially, agrees almost exactly with Cavanilles' description, except for this discrepancy. It is not probable, however, that our plant is the same species since the difference in leaflet number is too great to be accounted for as a variation. I am, there-

*Coursetia fruticosa (Cav.) comb. nov. *Lathyrus fruticosus* Cav. Ic. i. 58. pl. 84 (1791) [by error, *Astragalus fruticosus* in Rydberg's paper, Am. Journ. Bot. xi. 476 (1924)]; *Vicia fruticosa* Willd. Sp. Pl. iii. 1102 (1800); *Orobus tomentosus* Desf. Cat. Hort. Par. ed. 1. 195 (1804); *Orobus fruticosus* Pers. Syn. Pl. ii. 304 (1807); *Coursetia tomentosa* DC. Ann. Sci. Nat. iv. 92 (1825).

fore, transferring Harms' species from *Cracca* Benth. and, as his specific name "poliophylla" is, to all intents and purposes, preoccupied in the genus *Coursetia* by the valid *C. polyphylla* Brandg., l.c., I am renaming the plant *C. perplexans*. The work of Dr. Harms and Dr. Weberbauer has already received recognition in the names *Coursetia Harmsii* Ulbrich and *C. Weberbaueri* Harms.

In this connection the use of *Benthamantha* for *Cracca* Benth. may be considered. Botanists who follow the International Rules of Botanical Nomenclature (Vienna Congress 1905) have accepted, of course, the generic name *Tephrosia* Pers. Syn. Pl. ii. 328 (1807) for *Cracca* L. Sp. Pl. 752 (1753) and have therefore continued the use of *Cracca* Benth. ex Oersted in Kjøbenhavn Vidensk. Meddel. 8 (1853) for the small group of plants known by others as *Benthamantha* Alef. Bonplandia, 1862. 264 (1862). The use of *Cracca* Benth. under any circumstances is not correct, even under the International Rules with the consequent substitution of *Tephrosia* Pers. for *Cracca* L., because Art. 50 (Int. Rules) states that unless an earlier homonym (in this case, *Cracca* L.) is "*universally* regarded as non-valid" the later name is not to be changed. Now *Cracca* L. is used by all those who do not work under the International Rules and new species are continuously being proposed as "Craccas" with no particular indication on the part of their authors to which *Cracca* they belong. Surely, *Cracca* L. is far from "universally regarded as non-valid." Furthermore, the maintenance of *Cracca* Benth., even by those who substitute *Tephrosia* for *Cracca* L., creates "a permanent source of confusion or error" (cf. Int. Rules, Art. 51. 4) and therefore is to be rejected. The confusion is augmented by the general similarity of *Cracca* L. and *Cracca* Benth., technically distinct. For instance, Harms, l.c., in publishing *Cracca poliophylla* has made no direct indication whether he is proposing a new *Tephrosia* (*Cracca* L.) or a new *Cracca* Benth. so that the bibliographer (as witness the Gray Herbarium Card Index of New Genera and Species) can cite the name merely as "Cracca". The unreasonableness of maintaining *Cracca* Benth. so long as *Cracca* L. is in active use by a considerable number of botanists is further emphasized by Harms himself in designating *Cracca heterantha* (Griseb.) Harms, l.c., although this combination has been made previously by Kuntze, Rev. Gen. i. 175 (1891). Harms justifies his action on the ground that Kuntze made the transfer to *Cracca* L. (*Tephrosia*) rather than to *Cracca* Benth.

However, when we know more about the South American Coursetias, it may be possible to include the Benthamanthas or Craccas Benth. under one name which would be *Coursetia* DC., as it is the earliest.

The only character, all species considered, that distinguishes *Benthamantha* is found in the constrictions of the pod (cf. discussion above under *C. perplexans*) and this character is merely relative. The difference in seeds noted by Rydberg, N. A. Fl. xxiv. 220 (1924) doubtfully holds for the Peruvian species.

COURSETIA HARMSII Ulbrich, Rep. Spec. Nov. ii. 12 (1906).—PERU: In shrubs, gravelly valley. Flowers pink-white. Tambo de Pariocota, Oct. 8, 1922, *Macbride & Featherstone 2547*.

This represents another collection from near the type locality, Department of Ancash. The pods are not quite mature but the largest is 6.5 cm. long and 4 mm. wide, rather abruptly apiculate, glabrous and thin (for the genus). Mature fruits showing the seed characters are greatly to be desired as they may make necessary a change in the present concept of the genus.

NISSOLIA FRUTICOSA Jacq. Enum. Pl. Carib. 27 (1760).—PERU: Sandy valley floor, La Merced, *Macbride 5434*.

This plant is a vine with yellow flowers that fade reddish. It is not mentioned by Weberbauer.

Machaerium Schunkei, spec. nov., arbor circa 4 m. alta; ramulis glabris; internodiis 2-3 cm. longis; stipulis demum indurato-spinescentibus, circa 9 mm. longis; petiolo communi 9-10 cm. longo fusco-pubescente; foliolis brevissime petiolulatis vulgo 17-23 late oblongis plerisque 2 cm. longis 1 cm. latis basi rotundatis apice retusis; lamina foliorum super opaca plus minusve discolori utrinque parce subadpresse pubescente, pube laxa, venulis obscure reticulatis non conspicuis, costa media prominente; panicula ampla laxa rufo-villosa, floribus pedicellatis, bracteolis calycem brevibus, legumine glabro circa 6.5 cm. longo stipite 5-8 mm. longo incluso ad partem basilarem seminiferam 1 cm. lato; mediocriter contracto; ala chartacea supra medium circa 1.5 cm. lata. —PERU: Sandy valley floor, La Merced, Aug. 10-24, 1924, *Macbride 5432* (TYPE, Field Museum).

Apparently this species, a member of the section *Lineata*, is most closely related to the Brazilian *M. amplum* Benth. as defined in Journ. Linn. Soc. iv. 55 (1860). It differs especially in the more numerous and retuse pubescent leaflets and in the definitely pubescent inflorescence, even in fruit.

M. Schunkei is only the third species known from Peru. The others are *M. floribundum* Benth., l.c. 68, belonging to the section *Penninervia*, and *M. angustifolium* Vog. Linnaea, xi. 193 (1837). From the latter, also a member of the section *Lineata*, *M. Schunkei* differs in the fewer larger and laxly pubescent leaflets. No *Machaerium* is listed by Weberbauer.

This is a small 12-foot tree, the trunk and branches sparsely spiny. The pods are not quite mature. It is named for Mr. Carlos O. Schunke of La Merced, a naturalist who is well known to many entomologists and to growers of orchids and other tropical plants. He was my generous and helpful host for two weeks.

Machaerium Pittieri, nom. nov. *M. latifolium* (Benth.) Pittier, Contrib. U. S. Nat. Herb. xx. 470 (1922), not *M. latifolium* Rusby, Bull. N. Y. Bot. Gard. vi. 513 (1910).

This middle American species described by Pittier must be renamed because of the previous use of the word "latifolium" for a *Machaerium* of Bolivia.

ABRUS PRECATORIUS L. Syst. Nat. ed. 12, ii. 472 (1767).—PERU: La Merced, *Macbride 5365.*

Curiously enough this widely distributed tropical vine with well-known bright red and black seeds appears not to have been recorded from Peru.

CENTROSEMA SAGITTATUM (Humb. & Bonpl.) Brandg. ex Riley, Kew Bull. 1923. 344 (1923).—PERU: On herbs and low shrubs in shade, La Merced, *Macbride 5392.*

Riley, l.c., credits the transfer of this species (from *Glycine* to *Centrosema*) to Brandegee in Zoe, v. 202 (1905). According to the International Rules, however, which Riley in his use of the conserved generic name *Centrosema* evidently purports to follow, the transfer was not made there, for the citation is merely "incidental reference" and is not accompanied by "reference to a former description." The species is not mentioned by Weberbauer.

Rhynchosia apoloensis (Rusby) comb. nov. *Dolicholus apoloensis* Rusby, Bull. N. Y. Bot. Gard. vi. 515 (1910).—PERU: In hedgerows on sandy flats. Flowers yellowish. La Merced, Aug. 10-24, 1923, *Macbride 5307.* BOLIVIA: Milluguaya in Nord-Yungas, Dec. 1917, *Buchtien 773;* Buena Vista, Sara, Santa Cruz, March 5, 1921, *Steinbach 5393.*

Although Dr. Rusby, l.c., in proposing this plant as a new species, does not comment on its great resemblance to *R. melanosticta* Griseb. in Goett. Abh. xix. 124 (1874) it appears readily distinguishable from this Argentinian species by its constantly smaller flowers.

OCHROMA BOLIVIANA Rowlee, Journ. Wash. Acad. Sci. ix. 166 (1919). —PERU: La Merced, Aug. 10-24, 1924, *Macbride 5250.*

This well-known timber tree, "Palo de balsa", referred to *O. Lagopus* Sw. by Weberbauer, l.c. 98, is rather the Bolivian Balsa recently

described by Rowlee, l.c. He shows conclusively that *O. Lagopus* is confined to the West Indies. Although *O boliviana* is based entirely upon specimens from northeastern Bolivia, the Peruvian tree is, on floral characters, certainly not distinguishable. As the fruits of *O. boliviana* have not been described, it may be noted that a nearly mature pod from Peru is 17.5 cm. long, borne on a stipe 9 cm. long. The tree from which number 5250 was taken was in flower and fruit. My field notes describe it as a "large tree with rather open crown, light-colored smoothish bark and white fleshy petals".

Malesherbia Galjufii, spec. nov., fruticosa erecta circa 7.5 dm. alta; caulibus (vel ramis) ut videtur simplicibus ubique dense molliter villoso sed imprimis ad apicem; foliis numerosissimis cineraceo-viridibus sed utrinque dense subadpresse villosis subtus conspicue venosis et pilis patentioribus, margine plus minusve crenatis dense crispe ciliatis basi ad apicem cum pilis fulvescentibus fere 1 mm. longis, inferioribus ignotis, infra caulis medium fere sessilibus lineari-lanceolatis circa 8 cm. longis et 1 cm. latis basi et apice acutis vel apice acuminatis; superioribus similibus sed gradatim reductis; stipulis angusto-linearibus dense ciliatis circa 8 mm. longis; racemis terminalibus congestis basi foliaceo-bracteatis circa 3 dm. longis, 7 cm. latis; pedicellis circa 8 mm. longis; floribus virido-flavescentibus longe pilosis; receptaculo cylindraceo 3.5-4 cm. longo, 9 mm. lato, medio vix inflato; sepalis lanceolatis acuminatis 7 mm. longis; petalis similibus sed brevioribus et tenuioribus; corona marginem irregulariter leviterque dentatum; staminibus circa 5 mm. exsertis; seminibus subovalibus minute et obscure elavatim longitudinaliter transversaliterque striatis.—PERU: In crevice of river-cliff, Huertas, June 26, 1922, *Macbride & Featherstone 1347* (TYPE, Field Museum).

A handsome plant, evidently closely related to *M. cylindrostachya* Urb. & Gilg, Engl. Bot. Jahrb. xxxvii. 592 (1906), which I know only from description, but certainly not referable to that species because of the merely crenate rather than "inaequaliter profunde serratis vel dentatis" leaves, the much longer flowers, the less exserted stamens, etc. This is the seventh species of *Malesherbia* known from Peru; cf. Harms, Notizblatt, viii. 209-212 (1922).

Sr. Cristobal Galjuf of Huancavalica (Huaron), for whom this species is named, loaned me mules, supplies, and an arriero for a two weeks' trip from his coal mines to Ambo, on which journey this plant was discovered. It was found on a steep canyon side down which one of our pack animals had rolled, having lost his footing on the narrow trail several hundred feet above the streambed.

Columellia Andrei, spec. nov., ut videtur fruticosa erecta humilis; ramulis subtetragonis 0.5-1.5 dm. longis erecto-patentibus, glabris vel minute strigillosis, dense foliatis; foliis oblongo-oblanceolatis 2-3 cm.

longis medio vel supra medium 5-8 mm. latis apice apiculatis basi sensim in petiolum brevis attenuatis, integris coriaceis supra lucidis glabris vel junioribus minute et parce puberulis subtus pallidioribus glabris vel margine minute hispidis; cymis terminalbusque uni- vel trifloris; calyce glabro, lobis ovato-oblongis subacutis circa 5 mm. longis; corolla glabra circa 8 mm. longa, 10 mm. lata.—ECUADOR: Chuquiribamba, *Ed. André K1444* (TYPE, Field Museum); Cerro de St. Barbara, Nov. 18, 1876, *Ed. André 4500*.

It is interesting to add one more species to this monogeneric family of South American plants. Schlechter records six in his revision of the group, Notizblatt, vii, no. 68. 11 (1920), but he did not know *C. Mathewsii* Briq. Ann. Conserv. et Jard. xx. 367 (1919) which, from description, is apparently valid. The recognition of the present species, therefore, brings the total of known Columellias to eight and this last member is one of the most distinctive by virtue of its essential glabrousness. Its completely entire leaves seem to ally it to *C. sericea* HBK. or *C. subsessilis* Schltr. but it lacks entirely the characteristic pubescence of the former while the leaves average distinctly larger than the pubescent ones of the latter.

I am not altogether certain that the plant is Ecuadorian, for the label does not so state and André's Rapport sur une mission scientifique dans l'Amérique du Sud, Arch. Inst. Sc. Litt. iii. 5 (1878), which may list his collecting stations, is not at hand. There is, however, a locality "Chuquiribamba" in southwestern Ecuador and other of André's numbers in the forty-five hundreds are from that country.

TWO NEW SPECIES OF CANAVALIA

by

C. V. Piper, United States Department of Agriculture

Among the very interesting plants collected in Peru by J. Francis Macbride in 1923 are two undescribed species of *Canavalia* which were received too late to be included in the paper on the American species of the genus published in the Contributions of the National Herbarium.

Canavalia eurycarpa Piper, spec. nov. (sect. Didiplopleura). Glabrous climbing shrub; stems stout, terete, woody, becoming 5 mm. thick; stipules and stipels not seen; petioles about as long as the leaflets; petiolules glabrous, 6 mm. long; leaflets chartaceous, oval, the lateral ones oblique, acute, rounded at base, scarcely paler beneath, 10-12 cm. long; peduncles 10-20 cm. long, 15-30-flowered; pedicellar glands prominent, scattered; pods linear, straight, woody, brown, stoutly stipitate, shortly recurved-beaked at apex, 18 cm. long, 3-4 cm. broad, each valve longitudinally 4-ridged, one very close to each suture, the others more prominent, 2 mm. from each suture; inner layer not separating; seeds ellipsoid, much compressed, brown, shiny, 23 × 12 × 3 mm., the black hilum as long as the seed.—PERU: Pozuzo, alt. 2000 ft. on sunny brush-montaña, June, 1923, *Macbride 4580* (TYPE, Field Museum 535657).

This is the second species known for the section.

Canavalia peruviana Piper, spec. nov. (sect. Eucanavalia). Liana; stems terete, densely ferruginous puberulent when young, becoming woody and 5 mm. in diameter; stipules oblong-ovate, acute, puberulent, 3 mm. long; petioles puberulent, shorter than the leaflets; stipels subulate, stiff, black, 1.5 mm. long; leaflets coriaceous, broadly lance-oblong, truncate at base, slightly acuminate at apex to a blunt apiculate tip, the upper surface dark green, shiny, slightly puberulent especially on the veins, the lower surface paler, densely puberulent, 10-12 cm. long, the lateral ones slightly oblique; peduncles stout; pod linear, stoutly short-stipitate, short-beaked at apex, densely black puberulent, each valve with an indistinct ridge along each suture and a prominent one 2 mm. from the ventral suture, 10-12 cm. long, 18 mm. broad, 10-seeded; inner layer closely attached; seeds ellipsoid, very much compressed, gray, speckled and splotched with black, 10 × 6 × 1.5 mm.; hilum linear, three-quarters as long as the seed.—PERU: River banks, La Merced, alt. 2000 ft., August, 1923, *Macbride 5551* (TYPE, Field Museum 536591).

Nearest perhaps to *Canavalia boliviana* Piper but not at all closely related.

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TWO NEW EUPHORBIAS

by

C. F. Millspaugh

Tithymalus (Ipecacuanhae) **raphanorrhizus** Millsp., spec. nov., perennial, glabrous, prostrate from a fusiform root. Branches few, filiform; leaves orbicular, crenulate, petiolate, the lower scattered-alternate, few-crenulate, obtuse; upper opposite, crenulo-serrate, acute to apiculate, stipules none. Inflorescence solitary in the axils, sessile; involucres campanulate, glabrous; lobes oblong, fibrillate at apex; glands transversely ovate, thick, stipitate, the stipe prolonged to the base of the tube. Styles bifurcate one-third their length, stigmas globose. Capsule glabrous deeply tricoccus; seeds triangular-ovoid, white, 2 × 1.5 mm. the facets smooth, the angles sharp; caruncle (?*) circular, papyraceous papillate.—PERU: On a steep lichen covered western slope, alt. 8000 ft., Matucana, April 12, 1922, *Macbride & Featherstone 85* (TYPE, Field Museum 516618).

Tithymalus (Ipecacuanhae) **pencillatus** Millsp., spec. nov., prostrate or decumbent perennial, rootstalk thick, latex very viscid; plant glabrous, branches succulent; lower leaves few, alternate, sessile, ovate-spatulate, upper ovate, apiculate, the margin ciliate with multilocular hairs, all slightly repand-denticulate. Inflorescence solitary in the axils of the upper leaves; involucres red, campanulate, pedicels about the length of the tube or longer; teeth oblong, ciliate-fibrillate above; glands orbicular, entire, agaricoid, papillate, the stipe central, thick; styles bifid about one-quarter their length, clavate, pencillate. Capsule strongly tri-coccus, glabrous. Seed ecarunculate, ovoid-quadrangular the angles sharp, bluish-white until fully ripe then chocolate-brown, 2 × 1.8 mm.; dorsal facets smooth, ventral with one transverse sulcus and two large rounded mammiform prominences near the median line.

Branches 7-14 cm. long; lower leaves 8-10 mm. long, upper 12-15 mm. Sap of root extremely viscid.—PERU: In loose soil of a grassy slope, Matucana, 8000 ft. alt., April 19, 1922, *Macbride & Featherstone 299* (TYPE, Field Museum 516833).

*This may be only vestigial from the funicular attachment. It is, however, present and alike on every seed examined.

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